End Term Examination – 2026

Semester: 6th Semester

Branch: Civil Engineering

Subject Code: 604

Subject Name: Railway, Bridge and Tunnel Engineering

Full Marks: 70

Duration: Three Hours

Instructions: Part-A is compulsory

PART-A

1. Define the following terms: **1x6 = 6**

(i) Creep of rail

(ii) Tongue rail

(iii) Cant

(iv) Causeway

(v) Skew bridge

(vi) Pilot tunnel

2. Fill in the blanks: **1x5 = 5**

(i) The standard gauge width for Broad Gauge in India is __ mm.

(ii) The slope provided to the wheels of rolling stock is called __.

(iii) __ ballast has the longest life and best drainage property.

(iv) The rise in water level upstream of the bridge due to obstruction is called __.

(v) The operation of removing muck from the tunnel after blasting is called __.

3. Choose the correct answer: **1x5 = 5**

(a) Which type of sleeper has the longest service life?

i) Wooden sleeper ii) Steel sleeper iii) Cast iron sleeper iv) Concrete sleeper

(b) Which yard is used for sorting wagons according to destinations?

i) Passenger yard ii) Goods yard iii) Marshalling Yard iv) Loco yard

(c) Best material for railway formation is

i) Black cotton soil ii) Clay iii) Well graded gravel iv) Silt

(d) The structure constructed to carry a road or railway over a river or valley is called

i) Culvert ii) Bridge iii) Aqueduct iv) Viaduct

(e) A bridge having span less than 6 m is classified as

i) Minor bridge ii) Major bridge iii) Culvert iv) Causeway

PART-B

4. Answer any four **4×6 = 24**

(a) Explain what is meant by track alignment? What are the basic requirements of good alignment? **2+4 = 6**

(b) What are the requirements of an ideal rail joint? Name and draw different types of rail joints classified according to position of sleepers. **3+3 = 6**

(c) Write three functions of railway sleepers. Why is ballast used on railway tracks? **3+3 = 6**

(d) Draw a neat sketch of left hand turnout showing its different component parts. **6**

(e) What do you mean by Station yard? Describe the factors that influence the selection of a site for a railway station. **2+4 = 6**

(f) Name three tools used in the field of maintenance of track and write their basic functions. **3+3 = 6**

5. Answer any three questions. **3x6=18**

(a) Draw a sectional elevation of a bridge and show its component parts. **6**

(b) Write short notes on wing wall & abutment. **6**

(c) What do you mean by bridge bearing? Write functions of bearing used in a bridge. **2+4 = 6**

(d) What important items you will keep in view while inspecting a concrete bridge. **6**

(e) Distinguish between culvert and causeway. **6**

6. Answer any two questions. **2x6=12**

(a) Why is ventilation necessary in tunnels after blasting? Name two explosives used in tunnelling. **4+2=6**

(b) Write three safety precautions to be taken during construction of the tunnel. Name any three types of drilling equipment used in tunnelling. **3+3=6**

(c) Define tunnel lining. Why is it provided? **2+4=6**